

Application No.: 09/732,299  
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**Remarks/Arguments:**

**Introduction**

Claims 1-20 and 31-33 are pending. Claims 21-30 have been withdrawn from consideration. Claims 31-33 have been added.

Claim 1 has been amended to further describe that “wastewater stream director, flow directing outlet baffle, heavy waste removal area and preferred flow path are sized, shaped and positioned so as to prevent the heavy waste from being trapped with the light waste in the collection area, and so as to cause the heavy waste to be carried out of the separation container with said wastewater stream”. Support for this amendment may be found in the Specification at page 3, lines 7-23; at page 10, lines 15-32, and at other portions thereof.

Claim 20 has been amended to further describe that the air entraining means are “positioned in the separation container”. Support for this amendment may be found in the Specification at page 8, lines 22-31 and at page 9, line 23 to page 10, line 5.

Claims 31-33 have been added. Support for these amendments may be found in the Specification at page 10, lines 6-14 and page 11, lines 8-23 for claim 31; at page 11, lines 8-23 and page 15, lines 18-28 for claim 32; and at page 10, lines 6-14, and page 11, lines 8-23 for claim 33.

The Specification in the paragraph beginning at page 3, line 7, has been amended to describe that aspect of the present invention consistent with the amendments presented for claim 1. The Specification in the paragraph beginning at page 9, line 3, has been amended to include a “be” before “solely” at line 4 to correct a minor typographical error. The Specification in the paragraph beginning at page 11, line 8, has been amended to replace a semicolon with a comma at line 18 to correct a minor typographical error. The Specification in

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the paragraph beginning at page 12, line 19, has been amended to include "area" between "removal" and "42" at line 20 to correct a minor typographical error.

No new matter is introduced with these amendments. Accordingly, entry of these amendments is respectfully requested.

#### **Section 102 Rejections**

Claims 1-8, 18/1, 18/2 and 20 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Coyne (U.S. 5,637,221). Claims 1-6 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Aymong (U.S. 4,722,800). Claims 1-8, 10, 11, 14 and 15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Marsh (U.S. 2,076,380). Claims 1-8, 10, 11, 14/2, 14/11 and 15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by McLeod (U.S. 2,102,429). Claims 1-5 and 10-17 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by McDermott (U.S. 1,121,270). Claims 1-5, 10, 11, 14/2, 14/11 and 15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Hirshstein (U.S. 2,140,582). Claims 1-8, 11, 14/2, 14/11, and 15 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by and Ross (U.S. 2,338,971). Applicants respectfully traverse.

Coyne discloses a wastewater treatment system and method for reducing or eliminating total suspended solids, biological organic discharge and fats, oils and greases from a wastewater stream. The apparatus of Coyne is configured so that some solid debris floats to the surface of the tank 38 (column 8 lines 10-15), and other solids settle to the bottom of the tank and are either pumped or dredged from the bottom of the tank. The tank may also include a sludge removal drain to accommodate the removal of solids that have settled to the bottom of the tank 38 (column 8 lines 25-50).

Aymong discloses an oil-water separator, which includes a separator tank 60. The separator is configured so that solids sink to the bottom of the tank (column 8 lines 25-30). Periodically, the solids separated from the wastewater stream are emptied by hand from the bottom of the tank (column 9 lines 17-25).

McLeod discloses a grease trap with a separating chamber 15. The chamber 15 is provided with clean-out plugs (page 2, first column, line 55), apparently for removing solids.

McDermott discloses a separator, which is also described at column 1 line 12 as a "settling tank." One purpose of the settling tank is to "retain sand, dirt, etc., and to keep it out of the sewer." Heavy waste settles to the bottom 14 of the settling tank, and does not exit the settling tank (page 2 lines 105-124).

Ross discloses a separator in the form of a container. Wastewater enters the container, and solids fall to the bottom of the container and are held there by a baffle 14 (page 2, column 1, lines 3-4). The water leaving the container is "sludge free" (page 2, col. 1, lines 18-21).

Marsh discloses an "oil interceptor". In the oil interceptor of Marsh, a wastewater stream enters from the inlet 20 and is directed downward by a baffle 21. The stream is then separated into two substreams by a deflector bar 29 (page 2, col. 1 lines 71-75 - col. 2 lines 1-5). The heavy, solid waste proceeds in the lower portion of the wastewater stream along the bottom of the tank. The bottom of the tank has corrugations which create turbulent flow, causing the solid particles in the wastewater stream to bounce, thus releasing, and impelling upwardly, lighter waste. The lighter waste rises to the surface of the water in the separator. Heavier waste that is suspended in the liquid is drawn to the outlet 42 by suction (page 3, col. 1 line 64- col. 2 line 34).

Hirshstein discloses a water clarifying apparatus for reclaiming oil and grease. The apparatus includes an inlet pipe 5 with a baffle 12 opposite the inlet pipe 5. The baffle directs the wastewater stream downward into a central channel 20. As the wastewater stream travels through the channel 20, light waste separates upward to the surface of the water in the apparatus. On either side of the channel 20, there is a series of steps which create turbulent flow, and upon which solid matter can settle. If there is a moderate amount of suspended substances, those substances will be carried to the outlet through the channel 20. If there is a larger amount, then the suspended substances will settle on the steps, and will work their way into the stream at a later time to be carried out through the outlet.

In contrast, the invention as presently defined by amended independent claim 1 is directed to a wastewater separator for separating waste from a mixed wastewater stream before the mixed wastewater stream is directed into a sewer system, where the mixed wastewater stream includes one or more of heavy waste, light waste and water. The wastewater separator comprises a separation container; a wastewater inlet to said separation container; and a wastewater outlet from said separation container; said separation container comprising: a wastewater stream director within said container, said wastewater stream director being sized, shaped and positioned relative to said wastewater inlet to direct said wastewater stream along a preferred flow path to permit said light waste to separate from said wastewater stream in a first direction to a collection area and to permit said heavy waste to separate from said wastewater stream in a second direction towards a heavy waste removal area; and a flow-directing outlet baffle within said container for directing said wastewater stream to said wastewater outlet from said heavy waste removal area to remove said heavy waste from said separation container; wherein the wastewater stream director, flow directing outlet baffle, heavy waste removal area and preferred flow path are sized, shaped and positioned so as to prevent the heavy waste from being trapped with the light waste in the collection area, and so as to cause the heavy waste to be carried out of the separation container with said wastewater stream.

Applicants respectfully submit that amended independent claim 1 is not anticipated by any of Coyne, Aymong, McLeod, McDermott, Ross, Marsh and Hirshstein for the following reasons.

Amended claim 1 requires, *inter alia*, that the wastewater stream director, flow directing outlet baffle, heavy waste removal area and preferred flow path be sized, shaped and positioned so as to cause the heavy waste to be carried out of the separation container with the wastewater stream.

In Coyne, as described above, the heavy waste settles to the bottom of the tank and is pumped or dredged when the tank is cleaned. The tank may also include a sludge removal drain to remove solids from the bottom of the tank. Thus, in Coyne, the device is not configured "so as to cause the heavy waste to be carried out of the separation container with said wastewater stream", as required by amended claim 1.

In Aymong, as described above, the solids sink to the bottom of the tank and are periodically emptied by hand. Thus, the device of Aymong is not configured "so as to cause the heavy waste to be carried out of the separation container with said wastewater stream", as required by amended claim 1.

In McLeod, the chamber of the separation tank is provided with clean-out plugs at the bottom, as described above. Thus, McLeod does not disclose a device configured "so as to cause the heavy waste to be carried out of the separation container with said wastewater stream", as required by amended claim 1.

The separator of McDermott, as described above, functions to retain heavy waste and keeps it from exiting in the wastewater stream. Thus, the device of McDermott is not

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configured "so as to cause the heavy waste to be carried out of the separation container with said wastewater stream", as required by amended claim 1.

Ross, as described above, discloses a separator in which solids fall to the bottom of the separation container and are held there by a baffle. The water leaving the container is free of heavy waste, or "sludge." Thus, the device disclosed in Ross is not configured "so as to cause the heavy waste to be carried out of the separation container with said wastewater stream", as required by amended claim 1.

Amended claim 1 also requires that the wastewater stream director be sized, shaped and positioned to direct the wastewater stream along a preferred flow path "to permit said heavy waste to separate from said wastewater stream in a second direction toward a heavy waste removal area."

In Marsh, as described above, the heavy waste is carried in the wastewater stream along the corrugated bottom of the separation tank until it reaches the outlet 42. In Marsh, the wastewater stream is specifically described as moving along the bottom of the tank, and carrying the heavy waste along with it (page 2 col. 1 line 65 - col. 2 line 52; page 3 col. 1 line 64 - col. 2 line 34). Thus, the device disclosed in Marsh is not configured to permit the heavy waste to separate from the wastewater stream, as required by amended claim 1.

Amended claim 1 also requires that the wastewater stream director, flow directing outlet baffle, heavy waste removal area and preferred flow path be sized, shaped and positioned "so as to prevent the heavy waste from being carried by the light waste to the collection area." In the preferred embodiment described in the application, this configuration includes, but is not limited to, the positioning and shaping of the ramp (Specification at page 11, lines 8-23), and the positioning and shaping of the inlet baffle (Specification at page 9, line 23 to page 10, line 5 and at page 11, line 24, to page 12, line 3). The result of this configuration is to cause early



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separation of the heavy waste from the wastewater stream, which in turn prevents heavy waste from getting carried by the light waste to the collection area and being trapped thereat (Specification at page 15, line 29 to page 16, line 7).

Hirshstein does not disclose this feature. In the device of Hirshstein, some (not all) of the solid matter settles on the steps in some circumstances. However, these solids later reenter the wastewater stream, and in some cases, this reentry can take place at a location quite distant from the outlet. There is no disclosure in Hirshstein of the device being configured to prevent solids (whether or not they temporarily settled to the bottom of the tank) from being carried to the top of the tank by the rising light waste and trapped there.

In light of the above, it is respectfully submitted that Coyne, Aymong, McLeod, McDermott, Ross, Marsh and Hirshstein fail to anticipate amended independent claim 1. In addition, Applicants respectfully submit that amended claim 1 is patentable over all of the art cited by the Examiner. Therefore, reconsideration and withdrawal of the rejection of claims 1, and all claims dependent therefrom, are respectfully requested.

The invention as presently defined by amended independent claim 20 is directed to a wastewater separator for separating light waste from a mixed wastewater stream. The wastewater separator comprises a separation container having an inlet end and an outlet end; a wastewater inlet to said separation container; a wastewater outlet from said separation container; and air entraining means positioned in the separation container and associated with said wastewater inlet to entrain air into said wastewater stream; said separation container comprising: a wastewater stream director in the container, said wastewater stream director being sized, shaped and positioned to direct the wastewater stream along a preferred flow path which is generally diagonal across said container to facilitate separation of said light waste; and a flow-directing outlet baffle in said container for directing said wastewater stream from a downstream end of said preferred flow path to said wastewater outlet.

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The Examiner rejected claim 20 as being allegedly being anticipated by Coyne. Coyne, however, fails to disclose an air entraining means positioned within the separation container. In Coyne, the system contains a separate mixer 14 positioned outside the separation container.

Thus, Coyne fails to anticipate amended independent claim 20. Therefore, reconsideration and withdrawal of the rejection of claim 20, and all claims dependent therefrom, are respectfully requested.

Further, Coyne, Aymong, McLeod, McDermott, Ross, Marsh and Hirshstein, individually or in combination, fail to teach or suggest the present invention as presently defined by independent claims 1 and 20. The cited references, individually or in combination, fail to teach or suggest the waste water separator of claim 1 which includes the limitations, *inter alia*, (1) that the wastewater stream director, flow directing outlet baffle, heavy waste removal area and preferred flow path be sized, shaped and positioned so as to cause the heavy waste to be carried out of the separation container with the wastewater stream and (2) that the wastewater stream director, flow directing outlet baffle, heavy waste removal area and preferred flow path be sized, shaped and positioned so as to prevent the heavy waste from being carried by the light waste to the collection area. The cited references, individually or in combination, also fail to teach or suggest the waste water separator of claim 20 which includes the limitation of, *inter alia*, an air entraining means positioned within the separation container.

Therefore, it is respectfully submitted that independent claims 1 and 20, and all claims dependent therefrom are patentably distinct over Coyne, Aymong, McLeod, McDermott, Ross, Marsh and Hirshstein, individually or in combination.



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**Section 103 Rejections**

Claims 6-8 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentably over McDermott (U.S. 1,121,270) as applied to claim 5, and further in view of any one of Ross (U.S. 2,338,971) or Marsh (U.S. 2,076,380) or McLeod (U.S. 2,102,429). Claims 18/1, 18/2, 18/17, 19 and 20 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentably over McDermott (U.S. 1,121,270) as applied to claims 1, 2, 3 and 17, and further in view of Weber (U.S. 4,940,539). Applicants respectfully traverse.

With respect to independent claim 20, McDermott fails to teach or suggest an air entraining means. Weber discloses an air pump, but the pump must be positioned outside of the grease trap. Thus, the combination of Weber and McDermott, individually or in combination, fails to teach or suggest a wastewater separator having an air entraining means that is positioned outside of the separation container.

Reconsideration and withdrawal of the rejection of independent claim 20 is therefore respectfully requested.

Further, it is respectfully submitted that independent claims 1 and 20, and all claims dependent therefrom are patentably distinct over Coyne, Aymong, McLeod, McDermott, Ross, Marsh, Hirshstein and Weber, individually or in combination, for the reasons discussed above.

Therefore, it is respectfully submitted that independent claims 1 and 20, and all claims dependent therefrom are patentably distinct over the art of record. Reconsideration and withdrawal of all claim rejections are respectfully requested.

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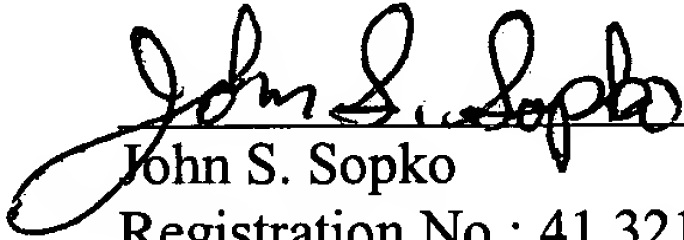
Summary

Therefore, Applicants respectfully submit that independent claims 1 and 20, and all claims dependent therefrom, are patentably distinct. This application is believed to be in condition for allowance. Favorable action thereon is therefore respectfully solicited.

Should the Examiner have any questions or comments concerning the above, the Examiner is respectfully invited to contact the undersigned attorney at the telephone number given below.

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication, or credit any overpayment, to Deposit Account No. 08-2461.

Respectfully submitted,

  
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